

10. (Amended) A method of fabricating a liquid crystal display device, comprising the steps of:

applying resin onto a first substrate, and patterning said resin to form a frame-shaped wall-like structure surrounding a display electrode; said wall-like structure comprising a frame-shaped structure composed of a plurality of rows, each row showing a dashed line shape have predetermined notches in staggered offset relationship to each other so as to inhibit flow of said seal member therethrough towards said liquid crystal;

arranging a second substrate so as to face said first substrate on which said seal member is applied, and pressing said second substrates to each other by said seal material; and

injecting a liquid crystal into a gap between said first and second substrates, which are adhered to each other.

IN THE DRAWINGS:

Amend Figure 6(b) as attached, marked in red.

REMARKS

Careful consideration has been given by the applicants to the Examiner's comments and rejection of the claims, and favorable reconsideration and allowance of the application, as amended, is earnestly solicited.

Applicants note the Examiner's objections to the drawings under 37 C.F.R.

1.83(a) in that the alignment film is not shown in the drawing.

Accordingly, applicants enclose an amended Fig. 6(b) showing the proposed alignment film which is clearly identified in the specification on Pages 20 and 21, and which has

now been designated by reference numeral "42". The polyimide alignment film is applied subsequent to the formation of the wall members 15 and column members 28 in order to prevent misalignment between the substrate components 21 and 22 during the execution of the resist step. This particular aspect is clearly and unambiguously disclosed in the present specification, and the amendment to Fig. 6(b) of the drawing would not in any manner introduce new subject matter. Accordingly, upon the Examiner's approval of the minor change to the specification which essentially includes the insertion of a reference numeral identifying the alignment film and the correction of Fig. 6(b) of the drawing, upon allowance of the application appropriately amended formal drawings will be submitted by the applicants.

Applicants further note the rejection of Claims 1 - 5 and 7 - 14 under 35 U.S.C. 103(a) as being unpatentable over Colgan et al. U.S. Patent No. 5,831,710 A1, this publication being commonly assigned with the present application; and the rejection of Claim 6 as being unpatentable over the art as applied to Claim 1 further in view of Haven EPO 113 064 A1, both of the foregoing publications having been cited by the applicants in an Information Disclosure Statement.

Accordingly, in order to clearly and unambiguously distinguish over the art, irrespective as to whether the latter is considered singly or in combination, applicants have cancelled Claims 2, 3 and 12 without prejudice or disclaimer, and amended Claims 1, 4, 5, 7, 8 and 10 as set forth hereinabove.

In particular, applicants note that both as to the liquid crystal display device and the method of producing the latter, in order to prevent the generally fluid or liquid seal material from passing inwardly from the edges of the particular substrates so as to potentially contaminate the liquid display area, there are provided a plurality of parallel spaced wall members

intermediate the substrates, and with notches or gaps provided therebetween. Furthermore, as now clearly emphasized in the claims, these particular wall members for the respective separate parallel rows thereof are offset or straddled relative to each other so as to form a barrier inhibiting the direct passage of any liquid seal material into the display area, inasmuch as inhibiting the direct flow thereof will, during the curing of the material ensure that the seal material forming the seal member around the periphery of the device remains externally of at least the inner peripheral wall barrier formed by the notched wall structures.

This particular concept has now been clearly emphasized in the claims, wherein Claim 1 has been combined with Claims 2 and 3 to set forth this particular aspect. Similarly, Claim 7 has also been amended in that regard while concurrently the method Claim 10 has also been amended to incorporate Claim 12 and further limitations emphasizing the foregoing structural aspects in the manufacture of the liquid crystal display device.

The foregoing inventive concept is not at all disclosed in either of the cited references of record.

Concerning Colgan et al, which is the closest art, applicants note that the segmented walls are essentially positioned in arrangement further inwardly and not at all in a manner so as to form a complete barrier structure to the inward flow of sealing material. The provision of such walls are essentially to provide a block for liquid crystal material flowing outwardly and also admixing with glue and contaminate the material.

To the contrary, the clear and simple structure provided for herein is adapted to provide an inward flow barrier to liquid sealing material emanating from the formation of the continuous seal member extending around the perimeter of the liquid crystal display device. The

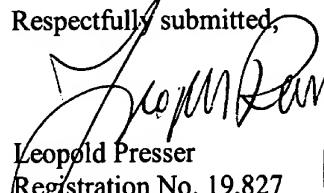
more restrictive amended claims which are being presented herein clearly distinguish over this particular structure.

Even combining Colgan et al, with the European Patent Application EPO 113 064, the latter of which is only cited in combination with regard to Claim 6, would not provide any configuration analogous to that set forth and claimed herein, particularly inasmuch as the independent claims of the present application have been amended to provide a structure and method relative to the various wall segments which are not at all disclosed nor suggested in this European publication.

In summation, applicants respectfully submit that the claims as amended herein clearly and unambiguously distinguish over the art, and the early and favorable reconsideration and allowance of the application as amended is earnestly solicited. However, in the event that the Examiner has any queries concerning the instantly submitted amendment, applicants' attorney respectfully requests that he be accorded the courtesy of possibly a telephone conference to discuss any matters in need of attention.

Finally, pursuant to the requirements, applicants also enclose a **"Version with Markings Showing Changes Made"** to facilitate the Examiner's review of the present amendments.

Respectfully submitted,



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Enclosures: Marked-up Fig. 6(b)

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"VERSION WITH MARKINGS SHOWING CHANGES MADE"

IN THE SPECIFICATION:

The paragraph on Page 20, line 30 through Page 21, line 20 has been amended to read:

--Next, the procedure advances to a patterning step for forming the wall member 25 and the column member 28 shown in Fig. 6(b). In this patterning step, a UV exposure is first performed using a photomask. A negative formed by the UV exposure can be obtained. That is, the portions of the photosensitive ultraviolet-curing resin 40 radiated by a light are cured, thus obtaining the basic structures of the wall member 25 and the column member 28. As a matter of course, in the UV exposure, the basic structures of them can be also obtained by a positive. Thereafter, an alkali developing is performed to remove uncured portions, and the array substrate 21 is washed out and dried. The cured resin is baked at a temperature of about 230EC. The resin forming the wall member 25 and the column member 28 are fully hardened by this baking. After the wall member 25 and the column member are formed, a polyimide alignment film 42 is applied to the surface of the array substrate 21. The reason why the step for applying the alignment film is performed after the formation of the wall member 15 and the column member 28 is that the execution of the resist step after applying the alignment film disorders the alignment.

IN THE CLAIMS

The claims have been amended in that Claims 2, 3 and 12 have been cancelled.

Claims 1, 4, 5, 7, 8 and 10 have been amended as follows:

--1. (Amended) A liquid crystal display device which has first and second substrates disposed with a predetermined gap, and seals a liquid crystal in the gap, comprising:

a seal member provided at the gap between said first and second substrates, said seal member being disposed outside a display area to seal said liquid crystal; [and]
 a wall-like structure disposed outside the display area and inside the seal member, said wall-like structure being made of a different material from that of said seal member and formed in plural rows; said wall-like structure being composed of dashed rows having notches; said notches of said wall-like structure being formed alternately in the plurality of dashed rows so that said seal material does not flow directly into said display area.

4. (Amended) The liquid crystal display device according to claim [2] 1, wherein a column-like structure for keeping the gap between said first and second substrates constant is provided, and a shape of said wall-like structure is determined based on a state of said column-like structure.

5. (Amended) The liquid crystal device according to claim [2] 1, wherein positions of the notches of the plural dashed rows in said wall-like structure are determined based on a position of a wiring formed either on said first substrate or on said second substrate.

7. (Amended) A liquid crystal display device which has a first substrate and a second substrate disposed with a predetermined gap, and seals a liquid crystal in the gap, comprising

a seal member provided in the gap between said first and second substrates, said seal member being disposed outside a display area to seal said liquid crystal in said gap; and

a wall-like structure comprising a plurality of parallel rows of staggered notched walls disposed outside said display area and inside said seal member, said wall-like structure being for preventing said seal member from flowing into said display area.

8. (Amended) The liquid crystal display device according to claim 7, wherein said seal member flows out in a fluidized state when said second substrate is pressed into said first substrate while heating said first and second substrates, and said wall-like structure is capable of stopping said seal member from entering said display area, through said staggered notched walls said seal member being in a fluidized state, and permitting said liquid crystal to flow into outside the wall-like structure when said liquid crystal flows out from said display area.

10. (Amended) A method of fabricating a liquid crystal display device, comprising the steps of:

applying resin onto a first substrate, and patterning said resin to form a frame-shaped wall-like structure surrounding a display electrode; said wall-like structure comprising a frame-shaped structure composed of a plurality of rows, each row showing a dashed line shape have predetermined notches in staggered offset relationship to each other so as to inhibit flow of said seal member therethrough towards said liquid crystal;

arranging a second substrate so as to face said first substrate on which said seal member is applied, and pressing said second substrates to each other by said seal material; and

injecting a liquid crystal into a gap between said first and second substrates, which are adhered to each other.

IN THE DRAWINGS:

Figure 6(b) has been amended to show the alignment film.